

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): An antenna device for transmitting and receiving radio waves, connectable to a portable radio communication terminal device, [[and]] comprising:

[[-]] a transmitter section and a receiver section, said receiver section including [[:]]

AS [[-]] a receiving antenna structure switchable between a plurality of antenna configuration states, each antenna configuration state being distinguished by a set of radiation related parameters [[:]], and

[[-]] a switching device capable of selectively switching said receiving antenna structure between said plurality of antenna configuration states [[:]],

the antenna device further comprising

[[-]] a measuring device capable of receiving a first measure representing a reflection coefficient as measured at said transmitter section; and

[[-]] a control device capable of controlling said switching device of said receiver section, wherein said selective switching of ~~[[the]]~~ said receiving antenna structure ~~device~~ between said plurality of antenna configuration states is effected, in response to said first measure representing said reflection coefficient.

A4 Claim 2 (Original): The antenna device as claimed in Claim 1, wherein said measuring device is capable of repeatedly receiving a first measure representing the reflection coefficient.

Claim 3 (Currently Amended): The antenna device as claimed in Claim 2, wherein said control device is adapted to control said switching device to switch between said plurality of antenna ~~configurations~~ configuration states in response to said repeatedly received first measure representing said reflection coefficient.

Claim 4 (Currently Amended): The antenna device as claimed in Claim 1, wherein each of said plurality of antenna configuration states is adapted for use of the antenna device in said portable radio communication terminal device in a respective predefined operation environment.

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Claim 5 (Currently Amended): The antenna device as claimed in Claim 4, wherein a first antenna configuration state of said plurality of antenna configuration states is adapted for use of the antenna device in said portable radio communication terminal device in free space and a second antenna configuration state of said plurality of antenna configuration states is adapted for use of the antenna device in said portable radio communication terminal device in a talk position.

Claim 6 (Currently Amended): The antenna device as claimed in Claim 5, wherein a third antenna configuration state of said plurality of antenna configuration states is adapted for use of the antenna device in said portable [[a]] radio communication terminal device [[in]] at a waist position of a user.

Claim 7 (Currently Amended): The antenna device as claimed in Claim 6, wherein a fourth antenna configuration state of said plurality of antenna configuration states is adapted for use of the antenna device in said portable [[a]] radio communication terminal device in a pocket position of the user.

Claim 8 (Currently Amended): The antenna device as claimed in Claim 1, wherein said antenna device is arranged for switching frequency ~~[[band]]~~ bands in response to said received first ~~received~~ measure representing the reflection coefficient.

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Claim 9 (Currently Amended): The antenna device as claimed in Claim 1, wherein said antenna device is arranged for connection and disconnection of reception diversity functionality, in response to said received first ~~received~~ measure representing the reflection coefficient.

Claim 10 (Currently Amended): The antenna device as claimed in Claim 1, wherein said transmitter section ~~further includes~~ comprises:

[[~~-~~]]a transmitting antenna structure switchable between a plurality of transmitting antenna configuration states, said plurality of transmitting antenna configuration states being distinguished by ~~[[a]]~~ another set of radiation related parameters; and

[[~~-~~]]a transmitter switching device for selectively switching said transmitting antenna structure between said plurality of transmitting antenna configuration states, wherein said control device is adapted to control said transmitter switching device of said transmitter section, and wherein said selective switching of said transmitting antenna structure

between said plurality of transmitting antenna configuration states is in response to said received first ~~received~~ measure representing the reflection coefficient.

Ad Claim 11 (Currently Amended): The antenna device as claimed in Claim 1, wherein said control device is adapted to control at least said switching device of said receiver section to selectively switch said receiving antenna structure between said plurality of antenna configurations configuration states in response to said received first ~~received~~ measure representing said reflection coefficient exceeding a threshold value.

Claim 12 (Currently Amended): The antenna device as claimed in Claim 1, wherein

[[-]]said control device is adapted to control at least said switching device of said receiver section to selectively switch the receiving antenna structure through said plurality of antenna configuration states;

[[-]]said measuring device is adapted to receive a respective measure representing the reflection coefficient for each of said plurality of antenna configuration states [[state]]; and

[[-]]said control device is further adapted to control said switching device of said receiver section to selectively switch said receiving antenna structure to one of said

plurality of antenna configuration states with a lowest measure representing said reflection coefficient, in response to said received first ~~received~~ measure representing a reflection coefficient exceeding a threshold value.

AC Claim 13 (Currently Amended): The antenna device as claimed in Claim 1, wherein said control device compares said received first ~~received~~ measure representing said reflection coefficient with a previously received measure representing said reflection coefficient, and said control device is adapted to control at least said switching device of said receiver section to selectively switch said receiving antenna structure between said plurality of antenna ~~configurations~~ configuration states in response to said comparison.

Claim 14 (Currently Amended): The antenna device as claimed in Claim 1, wherein said control device includes a look-up table with absolute or relative reflection coefficient measurement ~~measure~~ ranges, each of said reflection coefficients being associated with one of said plurality of antenna configuration states, and wherein said control device is arranged to refer to said look-up table to control at least the switching device of said receiver section.

Claim 15 (Original): The antenna device as claimed in Claim 1, wherein at least said plurality of antenna configuration states comprise different numbers of connected receiving antenna elements.

Claim 16 (Original): The antenna device as claimed in Claim 1, wherein said plurality of antenna configuration states comprise differently arranged feed connections.

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Claim 17 (Original): The antenna device as claimed in Claim 1, wherein at least said plurality of antenna configuration states comprise differently arranged RF ground connections.

Claim 18 (Original): The antenna device as claimed in Claim 1, wherein said control device is arranged in said receiver section.

Claim 19 (Original): The antenna device as claimed in Claim 1, wherein said control device comprises a central processing unit and a memory for storing antenna configuration data.

Claim 20 (Original): The antenna device as claimed in Claim 1, wherein said switching device comprises a microelectromechanical system (MEMS) switch device.

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Claim 21 (Currently Amended): The antenna device as claimed in Claim 1, wherein said receiving antenna structure comprises a switchable antenna element chosen from the group consisting essentially of meander, loop, slot, patch, whip, spiral, helical and fractal configurations.

Claim 22 (Original): An antenna device as recited in claim 1, wherein said radiation related parameters include at least one of resonance frequency, input impedance, bandwidth, radiation pattern, gain, polarization and near field pattern.

Claim 23 (Original): An antenna device as recited in claim 10, wherein said radiation related parameters include at least one of resonance frequency, input impedance, bandwidth, radiation pattern, gain, polarization and near field pattern.

Claim 24 (Currently Amended): An antenna device connectable to a portable radio

communication terminal device, comprising:

[[--]]transmitter and receiver sections, said transmitter section including

[[--]]an input for receiving a first RF signal from a transmitter circuitry of said portable radio communication terminal device,

Aφ [[--]]a power amplifier for amplifying said received first RF signal to provide an amplified signal, and

[[--]]a transmitting antenna element for receiving said amplified signal and for radiating RF waves responsive thereto, ~~in dependence thereof~~; and

said receiver section including

[[--]]an antenna structure switchable between a plurality of antenna configuration states to receive a second RF signal, each of said plurality of antenna configuration states being distinguished by a set of radiation related parameters,

[[--]]a switching device for selectively switching said antenna structure between said plurality of antenna configuration states,

[[--]]a low noise amplifier for amplifying said received second RF signal to provide an amplified second signal, and

[[--]]an output for outputting said amplified second signal to a receiver circuitry of said portable radio communication terminal device[[:]],

the antenna device further comprising

A ψ [[-]]a measuring device capable of receiving a measure representing [[the]] a reflection coefficient as measured at the transmitter section; and

[[-]]a control device capable of controlling the switching device of said receiver section in response to said measure representing the reflection coefficient.

Claim 25 (Currently Amended): In a portable radio communication device, a [[A]] method for transmitting and receiving electromagnetic waves, the method comprising:

[[(-)]receiving from a transmitter a measure representing a reflection coefficient; and

[[(-)]controlling a switching device to selectively switch an antenna structure of an antenna device of a receiver between a plurality of antenna configuration states in response to said measure representing the reflection coefficient, each of said plurality of antenna configuration states being distinguished by a set of radiation related parameters[[:]].

Claim 26 (Original): A method as recited in claim 25, wherein the set of radiation related parameters include at least one of resonance frequency, impedance, radiation pattern, polarization and bandwidth.

Ad Claim 27 (Currently Amended): The method as claimed in Claim 25, ~~further~~ comprising repeatedly receiving from the transmitter a ~~[[first]]~~ measure representing the reflection coefficient ~~repeatedly~~.

Claim 28 (Currently Amended): The method as claimed in Claim 26, ~~further~~ comprising controlling said switching device to switch between said plurality of antenna ~~configurations~~ configuration states in response to said repeatedly received ~~[[first]]~~ measure representing said reflection coefficient during use of said antenna device in ~~[[a]]~~ said portable radio communication device, so as to dynamically adapt said antenna device to objects in ~~[[the]]~~ a vicinity of said portable radio communication device.

Claim 29 (Currently Amended): The method as claimed in Claim 25, wherein each of said plurality of antenna configuration states is adapted for use of the antenna device in said portable radio communication device in a respective predefined operation

environment.

Claim 30 (Currently Amended): The method as claimed in Claim 25, further comprising switching frequency bands in response to said [[first]] received measure representing said reflection coefficient.

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Claim 31 (Currently Amended): The method as claimed in Claim 25, further comprising connecting or disconnecting reception diversity functionality, in response to said [[first]] received measure representing the reflection coefficient.

Claim 32 (Currently Amended): The method as claimed in Claim 25, further comprising controlling the switching device ~~of said receiver section~~ to selectively switch said receiving antenna structure between said plurality of antenna ~~configurations~~ configuration states in response to said [[first]] received measure representing said reflection coefficient ~~coefficient's~~ exceeding a threshold value.

Claim 33 (Currently Amended): The method as claimed in Claim 25, wherein in response

to said [[first]] received measure representing said reflection coefficient ~~coefficient's~~
exceeding a threshold value, the method further comprising:

[[~~-~~]]controlling the switching device of ~~said receiver section~~ to selectively switch
the ~~receiving~~ antenna structure through said plurality of antenna configuration states;

[[~~-~~]]receiving a respective measure representing the reflection coefficient for each
of said plurality of antenna configuration states [[state]]; and

A4 [[~~-~~]]controlling the switching device of ~~said receiver section~~ to selectively switch
the ~~receiving~~ antenna structure to [[the]] an antenna configuration state with [[the]] a
lowest measure representing the reflection coefficient.

Claim 34 (Currently Amended): The method as claimed in Claim 25, further comprising
comparing said [[first]] received measure representing said reflection coefficient with a
previously received measure representing said reflection coefficient, and controlling the
switching device of ~~said receiver section~~ to selectively switch said antenna structure
between said plurality of antenna ~~configurations~~ configuration states in response to said
comparison.

Claim 35 (Currently Amended): The antenna device as claimed in Claim 25, further

comprising storing a look-up table with absolute or relative reflection coefficient measurement ~~measure~~ ranges, each of said absolute or relative reflection coefficient measurement ranges ~~coefficients~~ being associated with a respective antenna configuration state, and referring to said look-up table for controlling at least said switching device.

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Claim 36 (New): The antenna device of claim 1, wherein said transmitter and receiver sections are separated.

Claim 37 (New): The antenna device of claim 1, wherein said receiving antenna structure comprises a plurality of individually switchable antenna elements.

Claim 38 (New): The antenna device of claim 37, wherein said receiving antenna structure has different electrical length in different ones of said plurality of antenna configuration states.

Claim 39 (New): The antenna device of claim 37, wherein said antenna structure is

optimized for different frequency bands in different ones of said plurality of antenna configuration states.

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Claim 40 (New): The antenna device of claim 1, wherein said receiving antenna structure comprises a plurality of spaced connection points individually connectable to a transmission line or to RF ground by said switching device.

Claim 41 (New): The antenna device of claim 1, wherein said control device is provided for controlling said switching device to switch between said plurality of antenna configuration states depending on a repeatedly received measured VSWR during use, so as to dynamically adapt the antenna device to objects in a close-by environment of the portable radio communication terminal device.
